Amendments to the Claims

1-38. (Cancelled)

39. (Currently amended) An oligonucleotide probe comprising a sequence of at least 10 contiguous nucleotides of a human mitochondrial genome, wherein the oligonucleotide probe comprises a ~~mutation selected from the group consisting of: a mutation selected from the group consisting of: T→C at nucleotide 114;~~ ΔC mutation at nucleotide 302~~; C→A at nucleotide 386; insert T at nucleotide 16189; A→C at nucleotide 16265; A→T at nucleotide 16532; C→T at nucleotide 150; T→C at nucleotide 195; ΔC at nucleotide 302; C→A at nucleotide 16183; C→T at nucleotide 16187; T→C at nucleotide 16519; G→A at nucleotide 16380; G→A at nucleotide 75; insert C at nucleotide 302; insert C→G at nucleotide 514; T→C at nucleotide 16172; C→T at nucleotide 16292; A→G at nucleotide 16300; A→G at nucleotide 10792; C→T at nucleotide 10793; C→T at nucleotide 10822; A→G at nucleotide 10978; A→G at nucleotide 11065; G→A at nucleotide 11518; C→T at nucleotide 12049; T→C at nucleotide 10966; G→A at nucleotide 11150; G→A at nucleotide 2056; T→C at nucleotide 2445; T→C at nucleotide 2664; T→C at nucleotide 10071; T→C at nucleotide 10321; T→C at nucleotide 12519; Δ 7 amino acids at nucleotide 15642; G→A at nucleotide 5521; G→A at nucleotide 12345; G→A at nucleotide 3054; T→C substitution at position 710; T→C substitution at position 1738; T→C substitution at position 3308; G→A substitution at position 8009; G→A substitution at position 14985; T→C substitution at position 15572; G→A substitution at position 9949; T→C substitution at position 10563; G→A substitution at position 6264; A insertion at position 12418; T→C substitution at position 1967; and T→A substitution at position 2299~~.

40. (Currently amended) An oligonucleotide primer comprising a sequence of at least 10 contiguous nucleotides of a human mitochondrial genome, wherein the oligonucleotide primer comprises a ~~mutation selected from the group consisting of: a mutation selected from the group consisting of: T→C at nucleotide 114;~~ ΔC mutation at nucleotide 302~~; C→A at nucleotide 386; insert T at nucleotide 16189; A→C at nucleotide 16265; A→T at nucleotide 16532; C→T at nucleotide 150; T→C at nucleotide 195; ΔC at nucleotide 302; C→A at nucleotide 16183; C→T at nucleotide 16187; T→C at nucleotide 16519; G→A at nucleotide 16380; GA at nucleotide 75; insert C at nucleotide 302; insert C→G at nucleotide 514; T→C at nucleotide 16172; C→T at~~

~~nucleotide 16292; A→G at nucleotide 16300; A→G at nucleotide 10792; C→T at nucleotide 10793; C→T at nucleotide 10822; A→G at nucleotide 10978; A→G at nucleotide 11065; G→A at nucleotide 11518; C→T at nucleotide 12049; T→C at nucleotide 10966; G→A at nucleotide 11150; G→A at nucleotide 2056; T→C at nucleotide 2445; T→C at nucleotide 2664; T→C at nucleotide 10071; T→C at nucleotide 10321; T→C at nucleotide 12519; Δ 7 amino acids at nucleotide 15642; G→A at nucleotide 5521; G→A at nucleotide 12345; G→A at nucleotide 3054;T→C substitution at position 710; T→C substitution at position 1738; T→C substitution at position 3308; G→A substitution at position 8009; G→A substitution at position 14985; T→C substitution at position 15572; G→A substitution at position 9949; T→C substitution at position 10563; G→A substitution at position 6264; A insertion at position 12418; T→C substitution at position 1967; and T→A substitution at position 2299~~.

41-117. (Cancelled)

118. (New) The oligonucleotide probe of claim 39 or primer of claim 40 which comprises a sequence of at least 12 contiguous nucleotides of a human mitochondrial genome.

119. (New) The oligonucleotide probe of claim 39 or primer of claim 40 which comprises a sequence of at least 14 contiguous nucleotides of a human mitochondrial genome.

120. (New) The oligonucleotide probe of claim 39 or primer of claim 40 which comprises a sequence of at least 16 contiguous nucleotides of a human mitochondrial genome.

121. (New) The oligonucleotide probe of claim 39 or primer of claim 40 which comprises a sequence of at least 18 contiguous nucleotides of a human mitochondrial genome.

122. (New) The oligonucleotide probe of claim 39 or primer of claim 40 which comprises a sequence of at least 20 contiguous nucleotides of a human mitochondrial genome.

123. (New) The oligonucleotide probe of claim 39 or primer of claim 40 which comprises a sequence of at least 22 contiguous nucleotides of a human mitochondrial genome.

124. (New) The oligonucleotide probe of claim 39 or primer of claim 40 which comprises a sequence of at least 24 contiguous nucleotides of a human mitochondrial genome.

125. (New) The oligonucleotide probe of claim 39 or primer of claim 40 which comprises a sequence of at least 26 contiguous nucleotides of a human mitochondrial genome.

126. (New) The oligonucleotide probe of claim 39 or primer of claim 40 which comprises a sequence of at least 30 contiguous nucleotides of a human mitochondrial genome.